

## break o'day catchment risk group

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Re: **Recommendations re: Implementation of Regulatory Controls  
for Aerial Spraying and Ground Spraying Agricultural Chemical Products:  
A Consultation Paper April 2008.**

This Group (BODCRP) has previously written a submission to the ASCHEM Council Recommendations - Review of Aerial Spraying and Regulatory Controls, (18 August 2006) and those comments still apply.

The Group asks whether the application of granular pesticide products are to be regulated under this set of regulatory controls or whether there will be another regulatory paper for these products?

The Group asks why roads and railways are not covered by these changes in regulations, especially as surface water runoff from these areas can be rapid?

The Group asks why the commercial application of pesticides by hand spraying is not included along with ground spraying? These regulations would then apply to local councils and other commercial enterprises or will there be another regulatory paper for this method of pesticide application?

The cost of civil litigation for off-site spray drift is high and is often a great impediment to a neighbour or exposed bystander affected by spray drift. Where there is no chemical trespass legislation or the ability to trace spray drift to a specific polluter, then it is very difficult to pursue a civil litigation claim. These issues also apply to organic producers who require to have certification regarding their chemical free status especially for international export markets. This then becomes a question of social equity and justice. Determinations have been and continue to be in favour of the chemical user not those potentially affected and / or harmed in the ecosystem.

How will these issues be addressed?

How will non-compliance with the Regulatory Controls be addressed?

With regard to these amendments:

### **Amendment 1:**

Water quality standards are required to be set to enable drinking water to be safe, clean and non-toxic.

The NHMRC Australian Drinking Water Guidelines (ADWG) has the same philosophy as the ANZECC guidelines as indicated by the following: *“The guidelines should never be seen as a licence to degrade the quality of a drinking water supply to the guideline value. Pesticides should not be found in drinking water, hence the guideline value is set at the limit of detection. If a pesticide is detected at or above this value the source should be identified and action taken to prevent further contamination.”* (APVMA – atrazine – second draft final review report 2004)

The ADWG 2004 state:

*“Pesticides should be authorised for use in water or water catchment areas only where necessary.*

*Water suppliers should adopt a preventive risk management approach, as stipulated in the ADWG, to maintain the supply of water at the highest practicable quality.*

*The guideline values should never be seen as a licence to degrade the quality of a drinking water supply to that level.*

*It is the responsibility of drinking water suppliers to keep the community fully informed about water quality, existing problems and needs for improvement.”*

Water catchment protection policies will need to be enforced with multiple barriers to prevent any *“pesticides deemed necessary to be used”* from contaminating the raw drinking water.

How will these water quality standards be policed and enforced?

Who decides what pesticides are to be used in water catchments and whether they are necessary or not?

What community consultation and dialogue will be undertaken with regard to these issues?

### **Amendment 2:**

The Group agrees with this, but the Group needs clarification of the definition of *“serious”* in the sentence: *“The application of pesticides should not cause serious environmental harm.”*

How is the determination of environmental harm made, apart from that defined in the ANZECC Guidelines – Fresh and Marine Waters, and how is this monitored?

Where are the baseline databases for these studies?

How is the movement of pesticides in water, e.g. leaching and surface water runoff to groundwater stores and bore water, to be monitored?

And how will this be carried out so that all contributions to raw drinking water are not affected by the spraying of pesticides?

How is spray drift to be managed so that it does not drift into waterways and other sensitive environmental areas?

The CSIRO classifies atrazine and simazine (among others) as endocrine disruptors (EDS) and calls for the precautionary approach and to minimise unnecessary discharge of endocrine disrupting substances to the environment. (Black Mountain Declaration 2007)

The CSIRO also state:

*"Research on the outcomes of contaminants has tended to focus on single chemicals tested under highly controlled conditions. In reality, ecosystems are complex environmental matrices (eg. water, sediments, soil and air) and mixtures are the norm.*

*The effect of a contaminant when assessed in isolation may be very different to the effect of a mixture. There are combined effects that may be described as additive, antagonistic or synergistic, and there are various chemical interactions, which may result in dramatically different fate, effects and risk profiles.*

*There is now substantial evidence that certain chemicals (e.g. estradiols, nonylphenol, bisphenol A, PCBs and some pesticides) can impact on the health of wildlife, influencing hormonal and reproductive functions. Chemicals that interfere with the normal functioning of endocrine systems are generally referred to as Endocrine Disrupting Chemicals (EDCs).*

*The ecological risks associated with EDCs, pharmaceuticals and personal care products (PPCPs) in the Australian environment are not clear. This is largely due to a lack of knowledge about their incidence in the Australian environment and the impact of exposure for our unique native species.*

*CSIRO is developing bioassays and biomarkers for assessing ecotoxicological impacts on native species. We seek to understand stress impacts throughout the system (from the molecular to the population level) for integrated environmental risk assessment. "*

A recent paper<sup>1</sup> has demonstrated that atrazine alters hormonal signaling in human cells at concentrations from 2 to 20 ppb. An article in Science Daily of 8 May 2008 states:

The UCSF study is the first to identify its full effect on human cells. In studies with human placental cells in culture, the UCSF scientists found that atrazine increased the activity of a gene associated with abnormal human birth weight when over-expressed in the placenta. Atrazine also targeted a second gene that has been found to be amplified in the uterus of women with unexplained infertility.

In parallel studies of zebrafish, a widely used animal in development studies, the research team showed that atrazine "feminized" the fish population -- increasing the proportion of fish that developed into females. In water with atrazine concentrations comparable to those found in runoff from agricultural fields, the proportion of female fish increased two-fold. Environmental factors

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<sup>1</sup> Suzawa M, Ingraham HA (2008). The Herbicide Atrazine Activates Endocrine Gene Networks via Non-Steroidal NR5A Nuclear Receptors in Fish and Mammalian Cells. PLoS ONE 3(5): e2117 doi:10.1371/journal.pone.0002117.

are known to influence the sex of zebrafish and many other fish and amphibians as they develop.

*"These fish are very sensitive to endocrine disrupting chemicals, so one might think of them as 'sentinels' to potential developmental dangers in humans," said Holly Ingraham, PhD, senior author on the study and a UCSF Professor of Cellular and Molecular Pharmacology. "These atrazine- sensitive genes are central to normal reproduction and are found in steroid producing tissues. You have to wonder about the long-term effects of exposing the rapidly developing fetus to atrazine or other endocrine disruptors."*

If the National Water Quality Management Strategy (ANZECC 2000 Guidelines) approach is followed then whole water sample toxicity testing can be used to determine toxicity and indicate biological effects.

How do these new Tasmanian maximum residue levels of pesticides in waterways comply with the CSIRO position on EDS?

Who decides whether it is "necessary" to use any EDS such as atrazine, simazine, alpha-cypermethrin, and 2,4-D and on what do they base these decisions?

What methods are to be used for measuring the toxicity of mixtures?

In light of the above information, how are these new proposed water quality standards justifiable or acceptable?

How will any water quality standards be policed and enforced?

How will these issues be addressed and monitored in the Tasmanian environment?

### **Amendment 3:**

Exclusion zones are required to protect places to exclude contamination through direct discharge or spray drift of pesticides.

Please note that the APVMA operating principles in relation to spray drift risk (2008) state that 4% of the pesticide load will be expected to reach 100 metres away from the pesticide spray release zone using a spray release height of only 3 metres. When aerially spraying pesticides on plantations, release heights of 15m above the treetops is generally accepted as a safe (often 45m release heights in total).

What then is the predicted distance that 4% of the spray load will travel?

The APVMA also states, with particular regard to atrazine: *"Ephemeral drainage lines should not be treated with atrazine particularly if runoff events are likely to follow. Ideally they would not be cultivated or cropped."* (APVMA – atrazine – second draft final review report, 2004))

However these remarks are pertinent to all pesticides and excipients with the potential to contaminate waterways.

The spraying of plantations often involves applying pesticides on to hilly, steeply sloped terrain with uneven contours, with multiple ephemeral waterways and often close to rivers. Plantations are aurally sprayed in these areas with pre- and post-emergent herbicides. Trees in this condition have no canopies and yet the spray release height will be well above 3 m for aircraft safety reasons. With mature trees the spray release height will be the tree plus 15 m and this will undoubtedly cause off-site spray drift.

How can aerial spraying comply with these new required pesticide exclusion zones?

How will these exclusion zones be policed and enforced?

How will compliance monitoring be undertaken and assessed?

#### **Amendment 4:**

Mandatory neighbour notifications require to be clearly defined with a minimum notification of two weeks.

No less notification time is acceptable.

How will these be enforced?

#### **Amendment 5:**

Permission from property managers for aerial and ground spraying within a hundred metres of residential premises must be obtained, with a minimum notification of 2 weeks.

This information should be required to be included in the spray operators' logbook.

#### **Amendment 6:**

It is the requirements that the property manager must inform contract sprayers with all details so that the requirements of the regulatory controls for spraying of pesticides has been met

This information should be required to be included in the spray operators' logbook.

**Amendment 7:**

The details to be documented in a logbook as outlined in these regulatory controls must be adhered to and written within one day of spray operation.

How is this to be enforced and compliance monitored?

A handwritten signature in black ink, reading "Alison Bleaney". The signature is written in a cursive, flowing style.

Dr Alison Bleaney OBE  
MBChB FACRRM

Sec BODCRG – an organization affiliated to National Toxic Network